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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,520	12/21/2001	David J. Hemker	LAM2P317	5915
25920	7590	03/26/2004	EXAMINER	
MARTINE & PENILLA, LLP 710 LAKEWAY DRIVE SUITE 170 SUNNYVALE, CA 94085			MARKOFF, ALEXANDER	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/029,520

Applicant(s)

HEMKER ET AL.

Examiner

Alexander Markoff

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 December 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. It is noted that the instant claims are directed to distinct inventions, which could be properly restricted. No restriction requirement is made this time because the same prior art is applied to all the inventions. However, the applicants are advised that such requirement could be made later if the claims would be amended to put serious burden on the examiner to examine all the invention together.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to all claims:

The claims are indefinite because it is not clear what is required by recitation of "the cleaning being primarily directed to..."

What manipulating step is referenced by this requirement?

Claims 2-4 are indefinite because it is not clear how the step recited by Claim 2 is connected to the steps recited by claim 1.

Is the chuck used during the cleaning?

Claims 3 and 4 are indefinite because it is not clear how these claims limit the subject matter of claim 2. It is noted that claim 2 requires "the contact regions" being the rejoins of the chuck that contact the wafer.

Claim 3 requires these regions to correspond pin positions. It is not clear how these two requirements correlate to each other. It appears that claim 3 contradict to claim 2.

Claim 4 requires these regions to correspond to wafer contact areas on a vacuum chuck. It is not clear how the requirements of claims 2 and 4 correlate to each other. It appears that claim 4 contradict to claim 2.

It is also not clear whether or not "a vacuum chuck" is different from "the chuck" recited by claim 2.

Claims 8-14 are indefinite because they lack of the recitation of the structural relationship between the parts of the system.

The claims are further indefinite because claim 8 comprises a method step.

The claims are further indefinite because claim 8 recites a site-specific cleaning apparatus that is capable of performing a function without recitation of the structure needed to perform this function.

Claim 13 is indefinite because it is not clear what is referenced as "a megasonic wand". This is not an art-recognized term. The specification fails to define the meaning of the term.

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Claim 19 is indefinite because it is not clear what is referenced as "a megasonic wand".

Claim 20 is indefinite because it contradicts to claim 15. This is because it requires "primarily directing" the cleaning to the specific regions, while claim 15 requires "primarily directing" the cleaning to the coordinates of the specific particles.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiatt et al (US Patent No 5,963,315) in view of Yin et al (US Patent No 5,865,901) and Boszormenyi et al (US Patent No 6,394,105).

Hiatt et al teaches a method and apparatus for controlling the contamination of the backside of the wafer and for cleaning the wafer if the contamination is determined.

Hiatt et al teach controlling contamination in the areas recited by the instant claims.

The disclosed cleaning includes sonic activated cleaning, sprays, etc.

The apparatus is integrated with an exposure device.

The detecting means includes a laser.

The apparatus includes a controller, which store the information in the memory and controls the process.

Thus Hiatt et al concern about the same problem as the instant invention and teach a method and apparatus as claimed except for optimization of the cleaning by preferential localized cleaning of the specific areas.

However, optimization of cleaning depending from the specific place of contaminants was known in the art, as evidenced by Yin et al and Boszormenyi et al.

It would have been obvious to an ordinary artisan at the time the invention was made to optimize cleaning in the method of Hiatt et al by directing the cleaning to the specific contaminated areas, specific contaminants and by adjusting the cleaning depending from the contamination according to the teachings of Yin et al and Boszormenyi et al with reasonable expectation of adequate results in order to enhance.

As to claims requiring the use of the laser.

Boszormenyi et al teach the use of the laser for both detecting the contamination and it's removal and further teach that this would result in saving in tool cost.

It would have been obvious to an ordinary artisan at the time the invention was made to provide in the modified method and apparatus of Hiatt et al a laser which would perform the detecting function recited by Hiatt et al with the cleaning functions in order to reduce the tool cost according to the teaching of Boszormenyi et al.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexander Markoff  
Primary Examiner  
Art Unit 1746

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PRIMARY EXAMINER